CARDIOVASCULAR EFFECTS IN A GROUP OF SUGARCANE WORKERS

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Background and Aims: Brazil is the world's largest sugarcane producer. The predominantly manual harvesting exposes workers to a series of health risk factors, such as physical exertion, heat and pollutants. This study aimed to evaluate the occurrence of adverse cardiovascular effects and possible mechanisms involved in these events on sugarcane workers.

Methods: Twenty-eight sugarcane harvesters, Caucasian, healthy, male, and residing in the countryside of São Paulo state were evaluated in the harvest period (when the sugarcane is burned) and in the non harvest period (when the sugarcane is not burned) through blood markers, twenty-four hours ambulatory blood pressure monitoring, heart rate variability by twenty-four hours electrocardiography monitoring, and muscle sympathetic nerve activity in the peroneal nerve. We measured fine particles and weather variables in the sugarcane fields in both periods. Data were compared using statistical tests for repeated measurements. Multivariate linear regression analyses were used to evaluate the effect of working during the harvest period controlling for covariates.

Results: The participants aged 31 ± 6.3 years and had worked for about 9.8 ± 8.4 years in this activity. During the harvest period, the concentration of fine particles was higher (84.7 ± 23.9 vs 53.2 ± 14.8, $p<0.001$), and workers presented lower serum levels of C-reactive protein (0,25 *vs* 0,44 mg/dl, $p<0,001$). However, working in the harvest period was significantly associated with higher systolic blood pressure (120.1 ± 10.3 *vs* 117.0 ± 10, $p= 0.047$). The reduction of 10 ms in SDNN was associated to increases of 0.73 and 0.62 mmHg in systolic and diastolic blood pressures, respectively. Also, an increase of 10 burst/min in sympathetic activity led to increases of 1.8 and 1.6 mmHg in systolic and diastolic blood pressures, respectively.

Conclusions: Work in burnt sugarcane harvesting was associated with higher blood pressure which may be linked to autonomic imbalance.

References:

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